cannot poſitively aſſert. There was likewiſe no viſible ſign of either Sex. Being diſſected it afforded theſe following obſervations.

Firſt the Guts were very much diſtended and tranſparent, and through them appeared the *Fæces* very liquid accompanyed with no ſmall quantity of Wind; the end of the *Rectum* was entirely cloſed like a bladder, and ſealed as it were Hermetically, pendulous in the cavity, and not in the leaſt continued to a Sphincter, of which there was no ſign.

Secondly, there was no Bladder to be found, nor *Uterus*, or any mark of what Sex it was deſigned for.

Thirdly, to ſupply the place of a Bladder, both the *Ureters* were inſerted into the *Rectum* within an Inch or thereabouts of the end.

Fourthly, the Stomack was full, even to diſtenſion, of an hard Subſtance, which being opened was exactly the ſame to appearance with hard preſſ'd Curds.

Fifthly, the *Chile* came freely enough out of the *Ductus Pecquelianus*, where it was inſerted to the *Jugular*, upon the ſmalleſt preſſure of the *Inteſtines*.

Sixthly, I could not urge the liquid or Flatulent Contents of the Guts upwards within two Inches of the *Pilorus*, tho I preſſed them till they brake, which hindred the inquiry after a *Valve* that poſſibly might be there to hinder the regreſs of any thing to the Stomack.

FLETA MINOR, *or the Laws of Art and Nature in knowing, judging, aſſaying, fining, refining, and inlarging the body of confined Metals &c.* By Sr. John Pettus *Knight, &c.*

THis uſeful Treatiſe contains in general the whole *Art* of *proving* and *melting* all ſorts of *Oars* and *Metals*, and is divided by the Author into *five* Books.

The

The Royal Society is collaborating with JSTOR to digitize, preserve, and extend access to *Philosophical Transactions (1683-1775).* www.jstor.org

The Firſt is of *Silver Oars*, where after a brief innumeration of the particular matter handled in it, He divides the *Oars* according to thoſe differences which are moſt to be regarded by the *Miner*; *viz.* They are either *Eaſy-flowing* Oars, or *Hard-flowing* Oars. Of the firſt ſort are reckoned *Glaſs-Oars*, which looſe not above one ſixth part in the Fire; The *White-goldiſh Oars*, ſo called not from their contents, but from their goodneſs in *Silver*; *Horny-Oars*, named from their tranſparency; and *Red-goldiſh-Oars* like *Cinnabar*, which yield above half Silver; with many more, which are deſcribed by their ſenſible qualities, and are computed to yield from ſix to ten Ounces in a *Centner*, or hundred weight.

Hard-flowing Oars are all *Flinty-Oars* which are commonly rich in *Copper*, but yield very little *Silver*, not much more than half an Ounce in a *Centner*. Likewiſe all common *White-Glimmeer*, or *Wolſeran*, or *Sparkling-Oars*, *Talk*, or *Cat-Silver* are very poor.

Next follows a deſcription of the *Aſſay-Furnaces*, and all the Inſtruments neceſſary to the preparation, and proving of Silver, and other Metals; as *Muffles*, *Bottomplates*, *Teſts*, *Copels*, &c. All which, as to the ſhapes which the Antients did, and the moderns do, uſe; as alſo the matter out of which, and the manner by which they are made; are accurately taught, and commended or diſcommended, as they anſwered Experience.

For good *Copels* on which the Tryals will neither leap, nor ſparkle, He particularly commends *Knuckle-bone* aſhes, either from Sheep, or Calf; perfectly calcin'd, very finely powdered, and moiſtned with ſtrong Beer.

The matter for the making *Copels* He calls *Clar*, for which, after the Tryal of other Bones both of Beaſts and Fiſh, He prefers *Calves-head-Bones*, or the Scales that come from their fore-heads as the beſt.

Then ſucceeds the preparation of *Lead-Glaſs*, or *Fluſs*; (which is a general term for any addition that makes the Metal

Metall Flow) of which there are two or three methods ſet down, together with the manner how to cleans it.

He deſcribes the *Aſſay-Weights* with their Diviſions The *Centner* Weight conſiſts of an Hundred pound divided downward. The *Penny* Weight is of two ſorts, That uſed in *High-Germany*, the greateſt of which is a *Mark* or 256 *Pence* the loweſt an *Helter* or half penny: The *Low-Dutch Penny* Weight has for the higheſt a *Mark*, or 288 Grains; for the loweſt half a Grain.

Silver-Oars he trys in ſhort thus: A ſmall quantity, the proportion of which to the *Centner* is known, is to be put upon a *Teſt*, and melted with its due weight of *Lead*; this being done, the *Lead* well cleanſed from its *Slacks* or Droſs is to be aſſayed upon the *Copel*, on which the Silver Grain will remain, which is the true *Content* of the Oar.

He diſcourſes how mixt Metals are to be aſſayed for Silver, as alſo how Coin'd mony, Plate, burnt Silver &c.

How the *Silver Touch-needles* are made; How mixed with their proportion of *Copper*, and uſed. How Silver is to be ſeparated from other Metals, and burnt *clean* under the *Muffle*. The way by which good *Proof-Ballances* are to be made, and fitted with all poſſible exactneſs, as alſo are the *Proof-Weights*; the diviſion of which from the *higheſt* to the *loweſt* he prefers in making them; but they are to be proved when made, from the *ſmalleſt* to the *greateſt*.

The Second Book is of *Gold-Oars*, the method the ſame with that of the firſt. He aſſerts on his own experience that no *Oar* hath *Gold* alone, without other Metals incorporated unleſs the *Gold* is ſenſible; and even that is not wholly clean, but moſt commonly Silvery.

The *Fair-Gold* is found ſtanding in a *Whitiſh Flint*, ſometimes in a *Blew* and *Yellow Horn-ſtone*, and alſo in a *Blew ſhiffer-ſtreamy* and *Yellow Iron*, but very ſmall and flaming, as in the Mine at *Knein* in *Bohemia*; there is alſo found a *Greeniſh-Silvery-Flint*, which after it is ground and waſhed, yields a fair high *Duke-Gold* which at the firſt digging is not perceived in the Flint.

He

He tells us that *Gold-waſhers* go about the Country, and get their living by waſhing Gold, together with their manner of waſhing it; with a deſcription of that compendious *Waſh-work* by a *Rattar* or Seeve made of Braſs wire, with a flat Hearth under it, and a Channel for the Water; this ſerves for *Sandy Works*.

That Gold Oars out of the *Veins* are to be prepared two wayes, either by a *Wet* or a *Dry Bucking; Flinty* and *Horn ſtony* Gold Oars are firſt to be *Roaſted* and ſuddenly *Quenched* to make the Oar run together, and the Flint brittle.

He alſo ſhews how *Gold Slicks* may be made to profit with and without *Quick-Silver*. That there are two ſorts of *Touch needles* for Gold, the *White* and the *Red*, ſo called from the exceſs of *Silver* or *Copper* in their Compoſition. That the *Black Touch-ſtones* are beſt, tho not all equally good: if they are too weak, no Gold toucheth bright upon them; if too hard, the *Hungariſh* and other weak Golds will not touch true.

He farther inſtructs how to prove Gold by *Aqua-fortis*, and the Goldiſh Silver by waſhing it in common water; How to find whether Silver contains Gold without the *Water proof*, namely by drawing a Wire of true Gold, and another of the Silver you would prove, through the ſame hole, and then finding the difference by weight.

Several wayes and Inſtruments are taught for the making *Aqua-fortis*, though *Iron Jugs* are prefered for this reaſon among others, that *Aqua fortis* diſtilled out of them, makes the Gold of an higher Colour.

To make an excellent ſtrong *Aqua-fortis*, he commends Calcin'd *Vitriol*, *Nitre*, *Alum*, and *burnt Flints*; after the Diſtillation; it is to be digeſted, and rectified from freſh *Nitre*, *Vitriol*, *Burnt Flints*, *Verdigriſe*, roaſted *Antimony*, filed *Iron*, and *White-lead*. *Aqua Regis* is made by the addition of Salt to good *Aqua fortis*. &c.

Then *Cementing* is mentioned, what it is, and how performed. That to it is required ſuch matter as will work upon Silver

Silver and Copper by reaſon of the *Salts* it contains, yet not touch the Gold; ſuch as *Verdigriſe*, *Lapis Hematites*, *Crocus Martis*, *Tutia* or calcinated *Vitriol.* With a deſcription of the *Cementing Oven*, and how it is to be governed; How to *Graduate* Gold and give it an higher colour; How to make *brittle* Gold *deft* and fit to be wrought, by melting it with *Nitre* and *Calx viva*, and other waies.

Laſtly how to caſt Gold through *Antimony*; which has been accounted the beſt if not the only means to make it very clean and fine; this the Author allows to be true, when the *Antimony* is good, but not elſe; and becauſe *Aqua Regis* toucheth Gold only and not Silver, therefore He judges it may be made pureſt and fineſt that way.

The Third Book is altogether of *Copper-Oars*, with their deſcription and the manner of *aſſaying* them, with many Inſtructions how to ſeparate other Metals from them; but the Inſtruments and operations being much the ſame with what went before, a more particular account will be but repetition. We ſhall only add, that he gives a ſingular way of melting in the *aſſaying-Work*, and teaches how *Copper* is to be made *Braſs*, by the addition of the *Lapis Calaminaris*; by which addition the Metal is uſually encreaſed Sixteen pound in a Centner.

The Fourth Book Treats principally of *Lead-Oars*, and briefly likewiſe of *Tin*, *Antimony*, *Quick-ſilver*, *Iron*, *Steel* and the *Load ſtone.*

The *Bright-Lead-Oar*, he ſays is the beſt, and contains above half Lead; beſides which there is *White-Lead-Oar*, like a *Sandſtone*; and *Red-Lead-Oar* like a reddiſh Clay; theſe are not ſo rich as the firſt, as neither is a *Yellow-Lead-Oar* mixt with *Gray*, which is called the *Lead-Ram.*

Then follow all the ways of *proving* it, as alſo the *boyling* and *ſmelting* it, with the cautions to be obſerved in the *Beat-works* &c. In his Chapter of *Magnets* he quotes a paſſage out of *Serapion*, how by calcining a *Magnet* with an equal portion of *Calx viva*, and after adding the like weight of yellow *Sulphur*, there will ariſe a preparation which with the leaſt *drop* of *Water* ſhall immediately take *Fire.*

The Fifth and laſt Book is of *Mineral Salts* ; as *Salt-petre*, *Vitriol*, and *Alum*. He deſcribes *Salt-peter* to be a *Stone-Salt*, which hath in it ſelf a ſullen fire ; tells you of what earths it is beſt made, how thoſe Earths and the *Lees* made of them are to be proved ; with the way of boyling the *Salt-Petre*, and purifying it when boyled. And in the laſt Chapter, he deſcribes the *Roaſting* and *trying Flints* for *Vitriol*, and the *Alum-Earth* or *Shiffer* for *Alum* ; which Earth is neither to be *roaſted* nor yet to be *boyled* Raw, but muſt be laid in an heap together, to be weathered and warmed in it ſelf, that it may fall aſunder and break out, and then you may make *Lees* of it. Beſides this the whole work is every where illuſtrated with *Sculptures* both of the inſtruments and operations.

The Tranſlator Sr. *John Pettus*, has added a *Dictionary* of the *Metallick* words, which he calls the *Second part* ; and has divided the Tract it ſelf into Chapters and Sections, and pointed it, (all which, (he tells us) were wanting in the *Original* ;) and hath promiſed likewiſe the *Contents* both of thoſe Chapters, and Sections, as alſo of the *Sculptures*.

He farther promiſes to publiſh *Agricola* in *Engliſh*, within the compaſs of a Year, it being already fully Tranſlated.

Benjamini *a* Brookhuyſen *Oeconomia Animalis* &c. *in* 4° 1683.

THe Author of this Book, being moſt addicted to the Principles of *Des-Cartes*, propoſeth (by a great variety of diſcourſes) ſeveral ways and declarations, what the true notion of a *Spirit* and a *Body* may be ; and how the *Soul* and *Body*, as two *different Subſtances*, may be joyned together, ſo as to perform all the *animal functions*, that commonly are obſerved as well in Man, as in all other ſorts of Beaſts, and living Creatures. To this purpoſe he divideth his Book into 121 *Articles*, adding to every one, (where he is inquiring the *Notion* of the *Soul*) a large diſcourſe, to make us better underſtand what he hath ſaid and aſſerted in the Articles. So from the firſt to the 12 Article, he explaineth by what way or means one muſt begin to form *Philoſophical conceits* : As, that no *Principles* of any Science muſt be taken for *granted*; and that the moſt *ſimple notions* that can be found out, muſt be the only rule of an *intellectual progreſſion*. And whereas true Philoſophy requireth a conformity of the objects with reaſon, ſo a right judgement about any thing muſt agree with the perception of it : And hence all prejudices, cuſtoms, opinions of ſeveral Sects, the veneration towards Antiquity

tiquity, and other fancies of man, muſt be all laid aſide; and the moſt ſimple and clear perceptions will ſerve for a true reformation of Philoſophy. In conſequence whereof, The Author ſaith, that the firſt thing which is known to us, is the *Conſcience* which we have of *thinking*, or that we *Know* that we have any *thoughts*: which he beleiveth to be the moſt exact Character of a Soul; ſo that the ſame rather ſhould be deſcribed or called *ipſa cogitatio*, then *res cogitans*: for this *cogitatio* or Act of *thinking*, he ſaith, to be the ſame thing with the exiſtence of the Soul; which cannot be demonſtrated to another, though every one by himſelf is convinced, that he *thinketh*, or hath an *exiſtence*. For this Propoſition, *ego cogito, I think*, being a particular one, is more certain than that general notion, *Omne cogitans eſt vel exiſtit*; and ſo it needs not any farther explication, *Quid ſit exiſtere ſive cogitare*. Afterwards *Artic.* 13 he inquireth, How this Act of *thinking* becometh to be ſo *continual*, as that no ſpace of time can interrupt the ſeries of *thoughts*. The cauſe of which, he deriveth firſt from *God*, as the only Principle of all *Being*; and then from the Nature and Eſſence of the *Soul*, which is kept by ſuch a divine vertue in *continual activity*: when all the variations which ariſe about the *thoughts* of man, are nothing but *Modifications* of one and the ſame Eſſence; ſo that a thing that once doth *really exiſt*, can never be brought to *nothing* again; the death or deſtruction of a thing being only a bare name, ſignifying nothing but a diſſolution of things that formerly were mixed and tyed together; and by this the variety of *modiſications* or *thoughts* do ſuppoſe and require always the *conſcience of thinking*, which is properly the Eſſence of the Soul, laſting for ever. *Artic.* 14 and the following, He inquireth about the *difference* of *thoughts*, and why *one thought* is to be accounted to be *better* than *another*; Where he ſheweth, that the prerogative or excellency of one above another is derived from the nobility of the *object* that is concerned in the thoughts: and whereas the ſame cannot be multiplied, he thinks it evident, that the whole *Syſtem of thoughts* is only a continuation of the ſame ſubſtance, variouſly modified, according to thoſe things that are within, and without, or about us. And in the ſame manner as our *thoughts* do prove our *exiſtence*, ſo there are certain *thoughts*, which do confirm that there are things *above us*, or *more perfect* then we can fancy our ſelves to be. Amongſt wch is that *thought* or *idea* of an *Infinite Being*, wch convinceth us, that there needs muſt be a *God*; becauſe no body being able to give or produce that in himſelf, which is beyond his reach, this *Idea Infiniti* doth argue ſome higher Principle, of an infinite power. By ſuch and the like Arguments after the *Carteſian* way, he goes on to demonſtrate the Proprieties and Attributes of God, till *Artic.* 19 he comes to prove the *exiſtence* of a *ſenſible body*, for we find that to the direction of our Senſes we meet with ſuch and ſuch *thoughts*, ſo that againſt our will ſometimes things are preſented to us, which we cannot *leave*, but are forced to *think* on; which proveth both the *Union* of our *Soul to*

the

the Body, as the *exiſtence* of this *ſenſible World*: for according as our Senſes are altered by the preſence or diſpoſition of the *Objects*, ſo differently do we find that we have *thoughts*, that are related to them; ſo that our *perceptions* cannot be continual dreams, but muſt really anſwer the impreſſion made by the object. But making farther an abſtraction of all *ſenſible bodies*, he findeth *Artic.* 20 that *extenſion* is as true a Character of them, as the *Act of thinking* is of the *Soul*: out of which *extenſion*, with ſome Principles of *Natural notions*, he is confident that all the *Phænomena* in Nature may be deduced and explained. And becauſe it is very hard to give a rational account, how theſe *two Subſtances Soul* and *Body*, differing ſo much one from another, may be *joyned together*, he talks, *Art.* 23, of *ſeveral degrees*, by which this *Union* is to be facilitated; propoſing a perfect harmony betwixt the variety of parts continually moved in the body, and the *perception* altered by ſuch relations in the Soul. Which *Mechanical Analogy* he declareth from *Art.* 29 to the end of the Book; ſhewing how Reſpiration and Attraction of the Air, The Nouriſhment of the body by Eating and Drinking, The Digeſtion, Fermentation, Sanguification, Circulation of the blood, be the cauſes of all Diſeaſes and Sickneſſes; as Feaver, Apoplexy, Conſumption, Pleuriſies, and other Infirmities are produced: and how the *animal Spirits* are generated in the *Brain*, and afterwards through the whole body diſperſed, do ſerve for the perfect *Oeconomy* of the Body, and in all *Paſſions* of the Soul. Amongſt all theſe explications, the Author ſometimes does correct the errors and miſtakes of other Phyſicians, eſpecially about the generation *ex ſemine & ovo*. For the reſt, the whole book ſeemeth to be a meer explication of *Des-Cartes* his opinions.

ERRATA.

PAg. 153. l. 22. *or the* l. 28. *tranſlated.* P. 164. l. 14. *to him.* P. 168. l. 35. *evil,* P. 173. l. 35. (d). P. 176. l. 9. *ſituated.* P. 178. l. 18. *Pupilla.* P. 179. l. 19. *Hypotheſis.* P. 179. l. 32 *,or* P. 188. l. 19. *Species.* P. 190. l. 35. *Succeeds.*

OXFORD,

Printed by *LEONARD LICHFIELD*, Printer
to the Univerſity, and are to be ſold by *Hen. Rogers*
at the Sign of the *Bible* in *Weſtminſter Hall*, and
Sam. Smith at the *Princes-Arms* in
St. Pauls Church-yard.
1683.